

A NEW SPECIES OF *MALTHOPSIS* (LOPHIIFORMES: OGCOCEPHALIDAE) FROM THE WESTERN ATLANTIC OCEAN

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ABSTRACT

A new species of *Malthopsis* is described from the western Atlantic Ocean, the first *Malthopsis* known from anywhere outside the Indo-western Pacific region except for Hawaii. Of 25 depth records, all were 275–475 m except one, which was 91 m.

Species of *Malthopsis* are relatively small sized ogcocephalids with tough skin and large cone-shaped scales (bucklers) so strongly ossified that the integument resembles a carapace. First erected over a century ago for a new form from the Andaman Sea (Alcock, 1891), *Malthopsis* is known from a single species from Hawaii, but is otherwise absent from the Pacific Plate. The genus is represented by at least four species in the western Pacific and Indian Oceans. The review of species of *Malthopsis* from Japan by Ochai and Mitani (1956) summarizes the earlier work. Garman (1899) described new species of *Malthopsis* from the eastern Pacific, but these were later assigned to *Dibranchus* by Bradbury (1967).

The group is still poorly known, probably owing in part to the fact that specimens of *Malthopsis* mostly come from outer shelf and upper slope depths and usually are not abundant. It is a surprise, nonetheless, to discover a distinctive miniature species residing in the Atlantic. The purpose of this paper is to describe this new species.

METHODS

Methods for making counts and measurements follow Bradbury (1980). The only series of lateralis organs that could be counted with confidence were the cheek series and subopercular series. Vertebral counts exclude the first vertebra, which is fused to the skull, but include the hypural fan.

Acronyms for museum collections from which specimens were loaned are the standardized symbolic codes (Leviton et al., 1985) as modified by Leviton and Gibbs (1988).

SYSTEMATICS

Genus *Malthopsis* Alcock

Malthopsis Alcock 1891:26 (Andaman Sea); Bradbury 1967:415 (definition of genus)

Diagnosis.—Body depressed for benthic existence; cranium elevated above surface of disk (as in *Ogcocephalus* and *Zalieutes* and to a lesser extent *Dibranchus*, but unlike *Halieutichthys* in which disk is uniformly flat). Outline of the disk markedly triangular, exaggeratedly so because of the large subopercular spines. Conical rostrum protuberant as in *Ogcocephalus* but very small; mouth small. Esca a single dorsal median bulb (no lobes ventral to articulation with pterygiophore, in contrast to *Dibranchus*, *Ogcocephalus*, and *Zalieutes*). Scales in the form of bucklers, which are large cone-shaped scales with apical spines and small knob-like spinules, like bosses, in rows radiating from apical

spine (similar to *Ogcocephalus* and *Zalieutes*, but unlike the simple tubercles seen in *Halieutichthys* and most *Dibranchus*). Between bucklers, skin covered by tiny tubercles. Small simple teeth in jaws, on each ceratobranchial V, and on palatines and vomer. Gill rakers in the form of pedicels attached to the gill bars and capped distally by small tooth plates (like *Dibranchus* and *Halieutichthys*, but unlike the tooth plates in *Ogcocephalus* and *Zalieutes*, which lack pedicels and are attached directly to the gill bar). Gills 2, filaments only on arches 3 and 4 except in new species (below), which has a few reduced gill filaments on arch 4 (*Dibranchus* also has gills 2, but *Ogcocephalus*, *Zalieutes*, and *Halieutichthys* all have 2.5, that is, holobranchs on the second and third arches and a hemibranch on the fourth). No membranes between arm-like pectoral pedicels and body wall.

Malthopsis gnoma new species
(Figs. 1–2)

Diagnosis.—Distinguished from all known species of *Malthopsis* in having the fourth gill arch with filaments, which are reduced in size compared to filaments on arches 2 and 3. Unusual in the family for having the cheek lateral line count 7 instead of 8. Rostrum a short cone, usually tilted sharply upward. Disk strongly triangular-shaped with large, blunt, backward-sweeping subopercular spines. Bucklers present on ventral surface of tail, these bucklers evenly distributed (unlike *Zalieutes*, which has two longitudinal rows of bucklers, and unlike *Ogcocephalus*, which has the ventral surface of tail uniformly covered with tiny tubercles).

Description.—Based on 39 specimens, 25 of which were used in the morphometric analysis (below). Body depressed, disk triangular, cranium usually well-elevated above the general surface of the disk. Rostrum small, usually upturned, horn-shaped. No membranes connecting pectoral pedicels with trunk. Tail firmly muscular though slender. Ventral surface of disk and tail flattened. Paired fins slender but sturdy. Eyes directed laterally and slightly anteriorly. Mouth small.

Based on 25 specimens 35.0–60.8 mm SL. Counts given as the range, followed by counts for holotype in brackets. D 4–5 [4]; P 11–13 [12,12]; subopercular lateral-line scales 5–8 [7,8]; cheek lateral-line scales 7 [7,7]. Vertebral counts made on 8 specimens; 1 had 17 vertebrae, 7 had 18 vertebrae.

Proportions given as percent of standard length, the range followed by the mean in parentheses and the percent for the holotype in brackets. Distance from snout to dorsal fin 63.1–68.2 (65.5) [68.1]; distance from jaw to anal fin 76.3–80.7 (74.0) [78.8]; distance from jaw to anus 50.7–59.1 (55.1) [57.2]. Disk outline subtriangular, bluntly rounded anteriorly; length of disk margin 42.3–50.6 (46.5) [46.1]. Tail slender, tapering evenly to base of caudal; width of trunk 14.3–20.3 (16.0) [20.3]; depth of caudal peduncle 5.5–7.2 (6.2) [5.8]. Rostrum produced into very short cone tilted sharply upward. Relative to other species of *Malthopsis*, cranium only moderately elevated above surface of disk; width of cranium 17.0–20.8 (18.4) [17.6]. Width of eye 10.0–12.6 (11.4) [11.1]; interorbital width 4.2–6.3 (5.1) [5.4]. Width of mouth 13.6–17.6 (15.9) [16.4]; length of jaw 9.3–11.4 (10.1) [9.9], jaw teeth visible when mouth closed, upper lip thin, lower lip slightly fleshy. Length of dorsal fin 8.2–12.1 (10.5) [9.6]; length of anal fin 10.7–17.4 (15.3) [17.0].

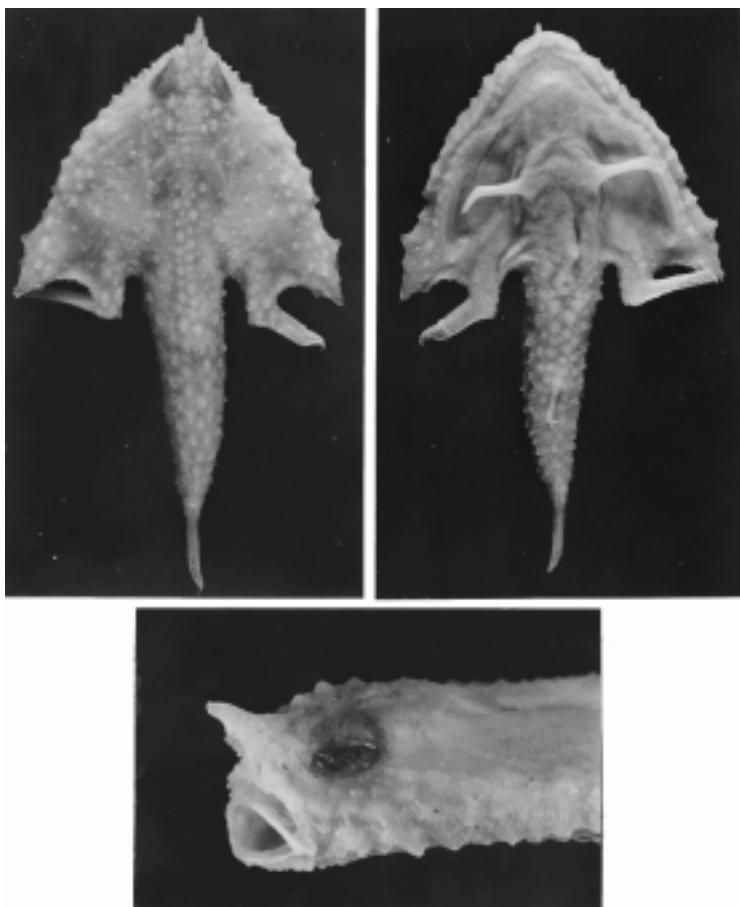


Figure 1. Paratype, USNM 207808, 52.4 mm SL, from off Honduras. Upper left, dorsal view; upper right, ventral view; below, side view of head.

Dermal cirri inconspicuous but usually present on disk margin and lateral sides of tail, sometimes on face, mainly in association with lateral line scales. Skin tough, the close-set bucklers forming a carapace-like covering, the over-all surface shagreen-like including skin covering eyeballs, which is completely covered with fine tubercles. In contrast to some other species of *Malthopsis*, tubercles cover lateral portions of disk dorsally and ventrally. Pectoral membranes thin, transparent; pectoral, pelvic, and caudal fin rays with tiny tubercles running out along the rays for 2/3 or more their length; dorsal fin with tubercles only along front edge of first ray, anal fin without tubercles except for a few near fin base.

Coloration.—Most specimens devoid of ground color, but a few faintly dusted with melanophores over entire body. Markings present in about one quarter of specimens, consisting of faint reticulum of thin brownish lines over dorsal surface of disk and tail. Fins colorless except dorsal fin sometimes bears a dusky stripe through middle.

Distribution.—So far known only from the north coast of Cuba, the vicinity of Puerto Rico and the Virgin Islands, and the Caribbean coast of Central America. The species



Figure 2. Holotype, MCZ 40476, 50.5 mm SL, off north coast of Cuba. Dorsal view taken with specimen wetted with alcohol to bring out reticulated markings. Although an upturned rostrum is present, it does not protrude beyond the anterior margin of the head, unlike the specimen shown in Figure 1.

evidently belongs to the upper slope fauna; the bathymetric range for the material at hand is approximately 275–475 m except for one lot recorded as from 91 m.

Etymology.—The word *gnoma* is a feminine adjective in the nominative singular. The binomial means “a gnome-like *Malopspis*,” alluding to the diminutive size yet grotesque appearance of this new species.

Type Material Used in Morphometric Analyses.—HOLOTYPE: MCZ 40476 (50.5 mm SL), ATLANTIS Sta. 3437, 22°44'N, 78°41'W, 274–329 m.

NORTH COAST OF CUBA: FMNH 65948 (1, 41.3 mm SL), OREGON Sta. 1340, 22°55'N, 79°27'W, 457 m. MCZ 38845 (1, 45.9 mm SL), ATLANTIS Sta. 3432, 23°05'N, 79°29'W, 457 m. MCZ 38881 (4, 44.0–45.0 mm SL), ATLANTIS Sta. 3437, 23°05'N, 79°32'W, 476 m. MCZ 40473 (2, 36.7–38.8 mm SL), ATLANTIS Sta. 3423, 22°50'N, 79°08'W, 448 m. MCZ 40474 (1, 43.0 mm SL), ATLANTIS Sta. 2982E, 22°47'N, 78°48'W, 384 m. MCZ 40475 (1, 41.4 mm SL), ATLANTIS Sta. 3436, 23°05'N, 79°28'W, 466 m. MCZ 41601 (1, 44.0 mm SL), ATLANTIS Sta. 3437, 22°44'N, 78°41'W, 274–329 m. USNM 157994 (1, 45.3 mm SL), OREGON Sta. 1344, 22°50'N, 79°08'W, 366–412 m.

VICINITY OF PUERTO RICO AND THE VIRGIN ISLANDS: CAS 23939 (1, 28.5 mm SL), OREGON Sta. 2645, 18°13'N, 67°20'W, 384 m. CAS 23940 (1, 35.0 mm SL), OREGON Sta. 2606, 18°37.5'N, 64°57'W, 384 m. FMNH 65949 (1, 41.3 mm SL), OREGON Sta. 2633, 17°34'N, 63°30'W, 91 m. USNM 108351 (2, 41.6–45.4 mm SL) and USNM 108354 (1, 47.5 mm SL), 18°40'15"N, 64°50'15"W.

CARIBBEAN OFF CENTRAL AMERICA: CAS 82224 (1, 47.7 mm SL), UNDAUNTED Cr. 6703, Sta. 76, 16°35'N, 87°56'W, 274–320 m. FMNH 64316 (1, 51.2 mm SL), OREGON Sta. 1903, 11°31'N, 83°09'W, 274 m. USNM 207808 (4, 51.4–59.0 mm SL), OREGON Sta. 10195, 14°17'N, 81°55'W, 329 m.

Material not used in morphometric analyses.—MCZ 38858 (1), ATLANTIS Sta. 3394, 22°34'N, 78°14'W, 366 m. MCZ 38867 (1), ATLANTIS Sta. 3434, 23°10'N, 79°35'W, 476 m. MCZ 38868 (3), ATLANTIS Sta. 3435, 23°05'N, 79°25'W, 466 m. MCZ 38892 (1), ATLANTIS Sta. 3302, 23°04'N, 82°34'W, 421 m. MCZ 40468 (1), ATLANTIS Sta. 3387, 22°33'N, 78°10'W, 448 m. MCZ 40469 (2), 22°36'N, 78°19'W, 421 m. MCZ 40470 (1), ATLANTIS Sta. 2982E, 22°45'N, 78°45'W, 274–329 m. MCZ 40471 (1), ATLANTIS Sta. 3428, 22°52'N, 79°22'W, 439 m. MCZ 40472 (2), ATLANTIS Sta. 3391, 22°34'N, 78°14'W, 421 m. USNM 108352 (2), 18°40'15"N, 64°50'15"W.

One specimen was cleared and stained. It is CAS 64549 from off the Virgin Islands, OREGON Sta. 1903, 11°31'N, 8°09'W, 274 m.

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